

What is claimed is:

1. An air conditioner for a vehicle having a temperature-controlled apparatus, the air conditioner comprising:

a heating heat exchanger for heating air to be blown into a passenger compartment of the vehicle by using cooling water for cooling the temperature-controlled apparatus as a heating source;

a first circuit through which the cooling water passes through the temperature-controlled apparatus and the heating heat exchanger;

a second circuit through which the cooling water passes through the heating heat exchanger while bypassing the temperature-controlled apparatus;

a switching device for switching a cooling water circuit between the first and second circuits; and

a control unit for controlling the switching device so as to select the first circuit when a cooling water temperature flowing out of the heating heat exchanger is lower than a cooling water temperature flowing out of the temperature-controlled apparatus.

2. The air conditioner according to claim 1, further comprising

an auxiliary heater for heating air to be blown into the passenger compartment by supplying thermal energy to the cooling water to be circulated into the heating heat exchanger.

3. The air conditioner according to claim 2, wherein the auxiliary heater is arranged in the first and second circuits to

heat the cooling water to be circulated into the heating heat exchanger in the first and second circuits.

4. The air conditioner according to claim 1, wherein the control unit calculates the cooling water temperature flowing out of the heating heat exchanger, based on a cooling water temperature flowing into the heating heat exchanger and a heat radiation capacity in the heating heat exchanger.

5. The air conditioner according to claim 1, wherein the control unit calculates the cooling water temperature flowing out of the heating heat exchanger, based on a cooling water temperature flowing into the heating heat exchanger, a flow amount of the cooling water passing through the heating heat exchanger, an air temperature flowing into the heating heat exchanger and an air flow amount passing through the heating heat exchanger.

6. The air conditioner according to claim 1, further comprising a temperature sensor for detecting the cooling water temperature flowing out of the heating heat exchanger, wherein the control unit controls the switching device so as to select one of the first and second circuits based on the cooling water temperature detected by the temperature sensor.

7. The air conditioner according to claim 1, wherein the control unit controls the switching device so as to select the first circuit, in a case where air to be blown into the passenger

compartment is required to be heated by the heating heat exchanger and waste heat from the temperature-controlled apparatus is permitted to be used.

8. The air conditioner according to claim 1, wherein the temperature-controlled apparatus is a fuel cell system of the vehicle.